

METHOD FOR MAGNETIC/FERROFLUID SEPARATION  
OF PARTICLE FRACTIONS

ABSTRACT OF THE DISCLOSURE

A particulate feed comprising a first particle type and a second particle type is separated by providing a separation apparatus having a separation vessel having a top and a bottom, and wherein the separation vessel includes inwardly sloping side walls. A magnet structure has a first pole positioned exterior of and adjacent to each of the side walls of the separation vessel, and a second pole positioned above the separation vessel. A mixture of the particulate feed and a ferrofluid is introduced into the separation vessel, and the particulate feed is separated into a first particle fraction comprising a majority of the first particle type, which sinks in the separation vessel, and a second particle fraction comprising a majority of the second particle type which floats in the separation vessel.